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931279

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**RETURN RECEIPT REQUESTED**

March 27, 1991

Regional Administrator  
United States Environmental  
Protection Agency, Region 5  
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Mail Code 5HS-11  
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Chicago, Illinois 60604

Director, Solid and Hazardous  
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President  
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717 Delaware Street S.E.  
P.O. Box 9441  
Minneapolis, MN 55440

RE: United States of America, et al. vs. Reilly Tar &  
Chemical Corporation, et al.  
File No. Civ. 4-80-469

Gentlemen:

Pursuant to the provisions of Section 10.2.1 of the Consent Decree-Remedial Action Plan, the City of St. Louis Park submits herewith a Work Plan for Investigating Leaking Multi-Aquifer Wells in the St. Peter Aquifer. The City's submittal, offered on behalf of Reilly Industries, Inc., is provided pursuant to the Agencies' issuance of a Record of Decision regarding proposed response actions in the St. Peter Aquifer. Insofar as the Record of Decision was executed on September 28, 1990 and ongoing discussions between the Project Leaders confirmed the Agencies' desire to conduct a study of multi-aquifer wells in the St. Peter Aquifer, the City has proactively developed the Work Plan within 180 days of the effective date of the Record of Decision rather than waiting for receipt of Agency directive to proceed.

Questions regarding the submittal may be forwarded to this office.

Sincerely,

James N. Grube  
Director of Public Works

JNG/ja  
enclosure

cc: Elizabeth Thompson (w/o enclosure)  
William Gregg (w/enclosure)

3/27/91 k.4  
002

WORK PLAN FOR INVESTIGATING LEAKING  
MULTI-AQUIFER WELLS IN THE ST. PETER AQUIFER

SUBMITTED TO THE

REGIONAL ADMINISTRATOR  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V

EXECUTIVE DIRECTOR  
MINNESOTA POLLUTION CONTROL AGENCY

COMMISSIONER  
MINNESOTA DEPARTMENT OF HEALTH

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO  
REMEDIAL ACTION PLAN  
SECTION 10.2.1

UNITED STATES OF AMERICA, ET AL.

vs.

REILLY TAR AND CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT  
DISTRICT OF MINNESOTA  
CIVIL NO. 4-80-469

MARCH 27, 1991

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**SECTION A**

**SITE MANAGEMENT PLAN**

## **WORK PLAN**

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### **SITE MANAGEMENT PLAN**

#### **PURPOSE AND SCOPE**

This Site Management Plan outlines the scope of work to be performed in order to identify and investigate leaking multi-aquifer wells affecting the St. Peter Aquifer within a portion of the City of St. Louis Park, Minnesota. This work shall be completed in accordance with the Consent Decree - Remedial Action Plan (RAP) for the Reilly Tar & Chemical Corporation National Priority List (NPL) site in St. Louis Park, Minnesota. Included in this plan are: 1) background information; 2) the Well Investigation Plan; and 3) reporting requirements.

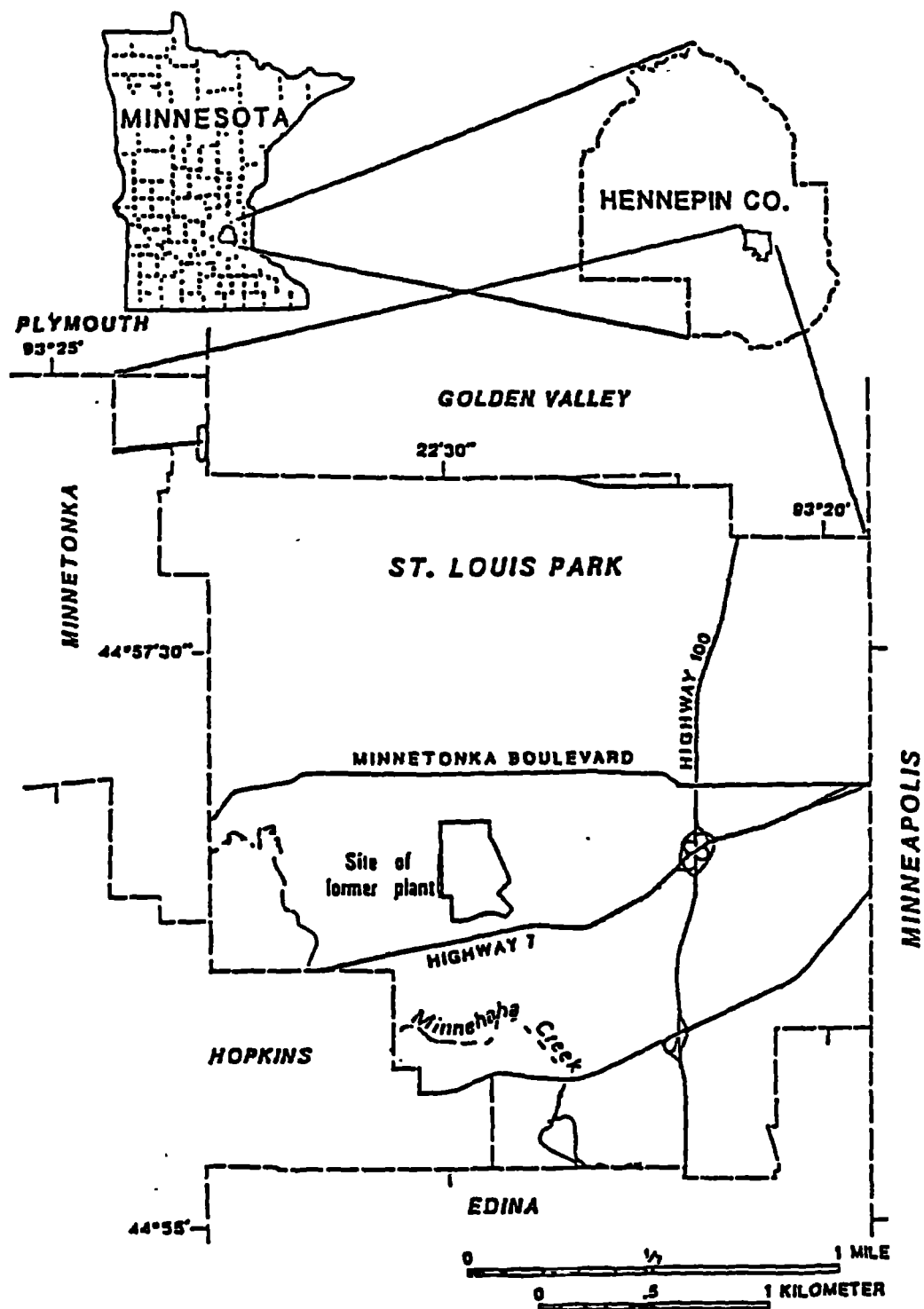
#### **BACKGROUND**

The former Reilly site occupies 80 acres in St. Louis Park (Figure 1). A coal tar refinery and wood preserving plant was operated at the site from 1917 to 1972. In 1972 the site was sold and converted to residential and recreational uses. Also a divided four lane avenue and storm sewer improvements were constructed on the site. Soil and surficial ground water contamination by a variety of coal-tar-related chemicals have been observed in the immediate vicinity of the former plant site. In addition, polynuclear aromatic hydrocarbons (PAH), which are constituents of creosote and coal tar, have been measured in certain bedrock aquifers in the St. Louis Park area.

The RAP was developed to address the contamination problem in St. Louis Park and includes: the installation of a granular activated carbon (GAC) drinking water treatment system at St. Louis Park municipal wells numbers 10 and 15; a system of pumping wells designed to remove and/or control the flow of PAH and phenolic contaminants in aquifers beneath St. Louis

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(From USGS Water Supply Paper 2211)

Figure 1 Site Location Map

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Park; remedial actions at and around the site which will reduce the infiltration of water, thus controlling the movement of PAH and phenolics from contaminated surficial geological deposits and allowing for safe use of the site and adjacent affected areas; monitoring of contaminants in all aquifers and in drinking water for St. Louis Park and selected neighboring communities to track the movement of contaminants and monitor their occurrence in drinking water; and other actions which will be implemented if contaminants are found to move in a manner which is not anticipated at this time.

The two aquifers of concern for this multi-aquifer well investigation are the Drift-Platteville and St. Peter Aquifers. Figure 2 presents the inferred extent of contamination for the Drift-Platteville Aquifer. This area of the Drift-Platteville Aquifer may be considered a source of contamination into the St. Peter Aquifer via any leaky multi-aquifer well. The Drift-Platteville Aquifer, Northern Area, Supplemental Remedial Investigation is currently studying the extent of contamination in the Drift-Platteville Aquifer including ground water monitoring data for ten new wells.

The St. Peter Aquifer gradient control well (W410) will control the spread of PAH and phenolics within the aquifer. Figure 3 shows the approximate capture zone predicted for well W410.

Multi-Aquifer Well Hydraulics. Any well that is hydraulically connected to more than one aquifer is by definition a multi-aquifer well (MAW). Such wells may provide pathways for shallow contaminants to migrate into deeper aquifers. Recognizing this potential problem, the Minnesota Water Well Construction Code now prevents the construction of MAW. Most MAW are therefore old and a corresponding lack of information necessitates this investigation.

The movement of water between aquifers in a MAW may be due to original open-hole construction, leaks in the casing, and/or flow in the annular space between casing and borehole. Water may then flow from one aquifer to another in response to differences in hydraulic head

NON-RESPONSIVE

Figure 2 Inferred Area of Contamination  
in the Drift-Platteville Aquifer 1990



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Reference: MGS, Miscellaneous Map Series,  
M-57, Plate 1 of 2, Bedrock Geology.

**NON-RESPONSIVE**

Figure 3 Calculated Capture Zone for pumping  
well W410 at 100 G.P.M.

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between aquifers. Within the study area the hydraulic head decreases with depth, and flow in MAW is downward. The water level in a MAW is a function of each aquifer open to the well (Figure 4), and local ground water gradients may be modified as a result (Hult and Schoenberg, 1984).

Consent Decree Requirements. The RAP requires that within 180 days of the receipt of the decision for remedial actions in the St. Peter Aquifer (pursuant to RAP Section 8.3) a plan for investigating suspected multi-aquifer wells open to the St. Peter Aquifer must be submitted to the U.S. Environmental Protection Agency (EPA), Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Health (MDH). Wells which may be leaking water exceeding any of the Drinking Water Criteria for PAH or 10 micrograms per liter of phenolics into the St. Peter Aquifer outside the capture area of the St. Peter gradient control system must be investigated.

The techniques for analyzing each such suspected deep multi-aquifer well must include at a minimum for each well: static water level measurements; water quality monitoring; spinner logging; caliper logging; and E- or natural gamma logging. Additional investigation techniques such as downhole television logging are permitted.

Previous Study. In 1983, E.A. Hickok & Associates (Hickok) compiled a summary of information for all of the wells in the study area (Figure 5). Information collected from drillers, government agencies, and a door-to-door survey included: unique well number; owner; location; geologic log; casing schedule; depth; and current status (active, inactive, existence uncertain, abandoned). The Hickok study area includes the entire study area for the Drift-Platteville and St. Peter Aquifers (Figure 3). The Hickok summary provides information on all wells identified by previous studies of the Reilly site, including all wells known by the USGS.

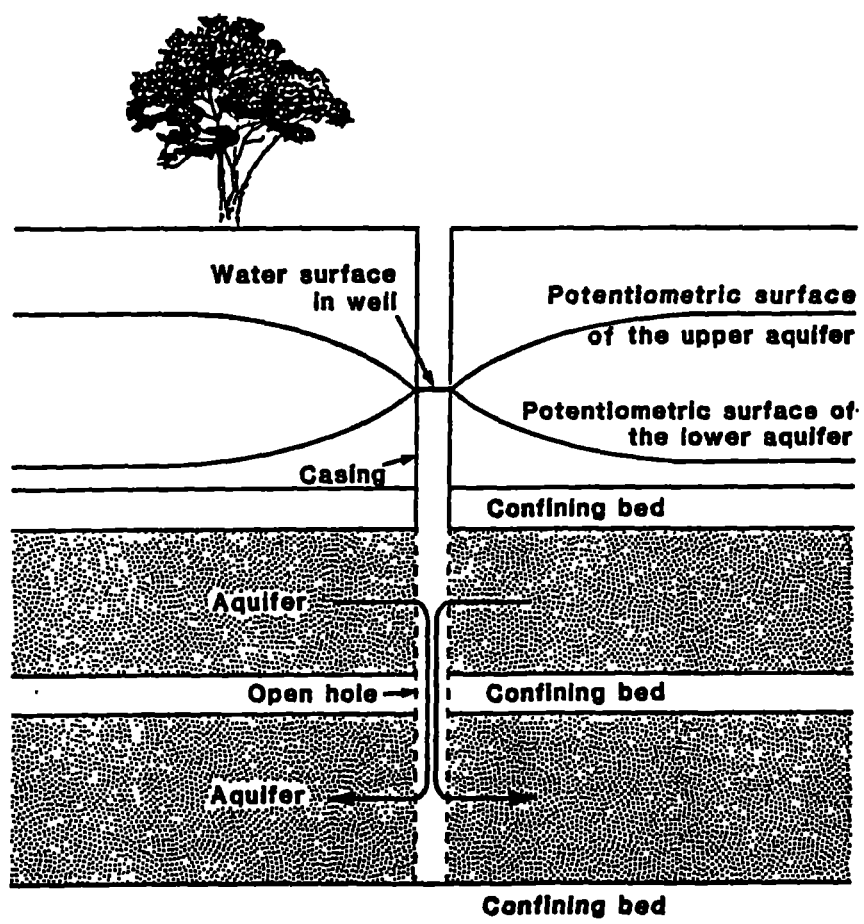


Figure 4 Schematic Hydrologic Section showing MAW hydraulics. From Hult and Schoenberg, 1984.

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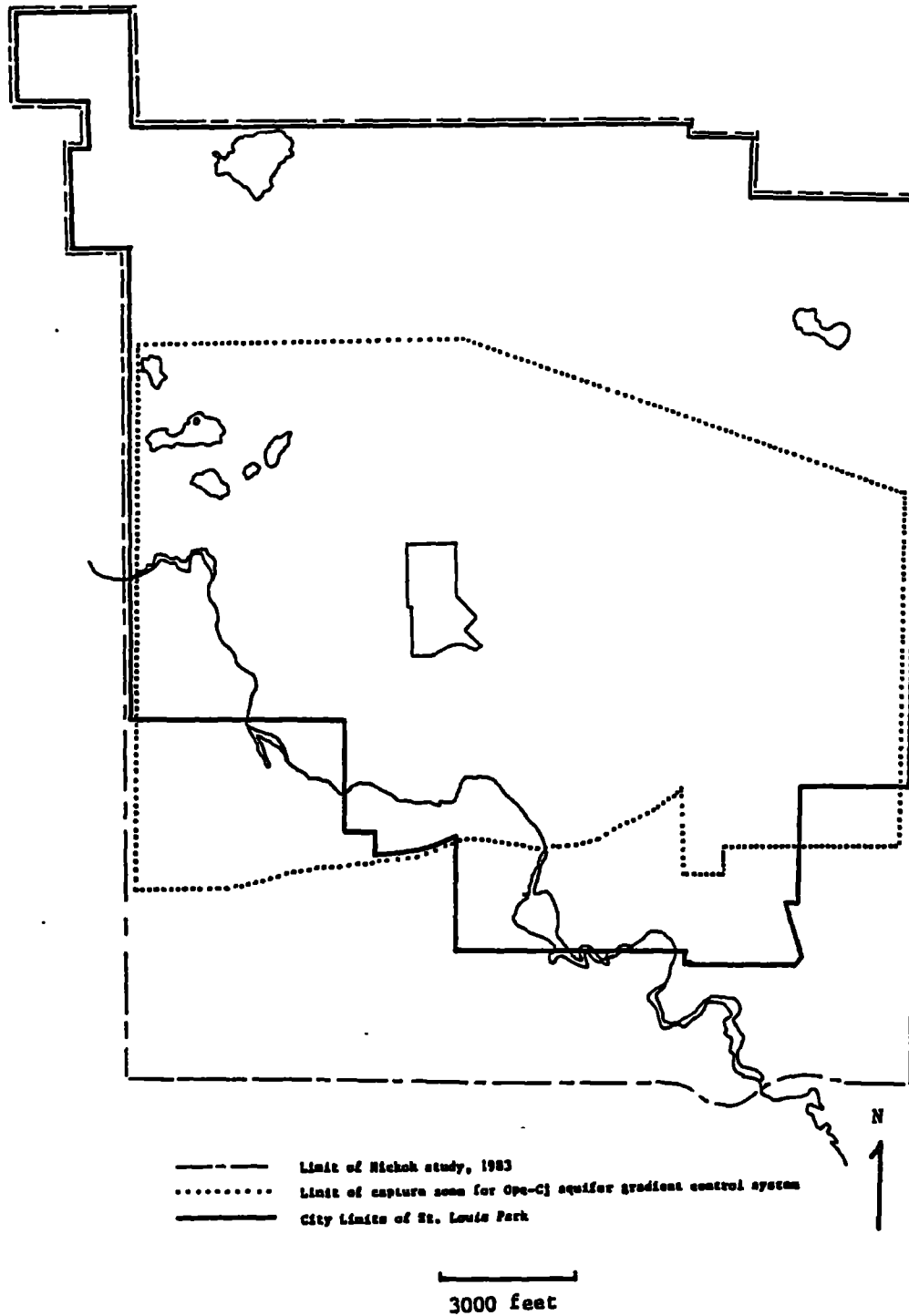


Figure 5 Project area of the Hickok well search study and capture zone of the Prairie du Chein-Jordan Aquifer gradient control system.

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### WELL INVESTIGATION PLAN

In accordance with the Consent Decree - RAP, this multi-aquifer well investigation will focus on wells that meet each of the following requirements:

1. The well is located within the inferred area of contamination in the Drift-Platteville Aquifer (Figure 2);
2. The well is located outside of the capture area of the St. Peter Aquifer gradient control system (Figure 3); and
3. The well is known to be, or may be, a Drift-Platteville/St. Peter multi-aquifer well (Hickok, 1983).

Based on the Hickok study, 51 wells have been determined to meet the requirements as listed above (Table 1). Most of the wells listed in Table 1 are potential MAW because well depths, driller's logs, or other pertinent information are currently not available. A reasonable effort will be made to determine the location and existence of each well listed in Table 1. It may not be possible to locate all 51 wells listed in Table 1 because: 1) the information gathered by Hickok that provided evidence that a particular well exists may be incorrect, and 2) a particular well may be hidden, abandoned, or destroyed due to recent land use changes (e.g. construction or demolition activities).

The investigation of existing wells listed in Table 1 will start with static water level measurements and well depth measurements. These two measurements will be used to determine if the well is deep enough to penetrate the St. Peter Aquifer or deeper. The static

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Table 1

## POTENTIAL MULTI-AQUIFER WELLS

	<u>Unique Well Number</u>	<u>Owner</u>	<u>Location</u>
1	232681	Economic Development Authority of St. Louis Park	3550 Brunswick
2	232532	<b>NON-RESPONSIVE</b>	
3	232503		
4	233331		
5	232564		
6	232683	H. J. Shotwell Co. (Arnold Bloomquist)	5721 W. 36th Street
7	232618	<b>NON-RESPONSIVE</b>	
8	232689		
9	232780		
10	232932		
11	232828		
12	232590		
13	232513		
14	232782		
15	232773		
16	232749		
17	232865	Bob Matzke & Assoc.	3870 Alabama
18	232935	<b>NON-RESPONSIVE</b>	
19	232645		
20	232838		

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Table 1 (cont.)

## POTENTIAL MULTI-AQUIFER WELLS

	<u>Unique Well Number</u>	<u>Owner</u>	<u>Location</u>
21	232982	<b>NON-RESPONSIVE</b>	
22	232841		
23	216091 (W77)		
24	216064		
25	232502		
26	232598		
27	232750		
28	233311		
29	232640		
30	233353		
31	232651	Consumer Brokers	3521 Webster
32	233325	<b>NON-RESPONSIVE</b>	
33	232910		
34	232856		
35	232657	The Frantz Family Partnership	3501 Xenwood
36	232825	Managed Service, Inc.	6500 Oxford
37	232919	<b>NON-RESPONSIVE</b>	
38	233355		
39	232592		
40	232598		

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Table 1 (cont.)

## POTENTIAL MULTI-AQUIFER WELLS

	<u>Unique Well Number</u>	<u>Owner</u>	<u>Location</u>
41	232851	<b>NON-RESPONSIVE</b>	
42	232896		
43	232810	Herman Hasselbring	3825 Edgewood
44	232568	Automobile Association	6425 Goodrich
45	232516	<b>NON-RESPONSIVE</b>	
46	232517		
		Park Industrial Properties	6314-18 Cambridge
47	232518	S & S Welding	6506 Cambridge
48	232519	S & S Welding	6510 Cambridge
49	232521	Viking Soap & Chem.	6529 Cambridge
50	232988	<b>NON-RESPONSIVE</b>	
51	216079		
52	216106		



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water level measurements should indicate if the water level in the well matches the water level expected for a well of the depth that is measured. The expected water levels for the Drift-Platteville and St. Peter Aquifers will be based on city-wide water levels produced for the 1990 Annual Report. This will eliminate the potential uncertainty that could result if the well was obstructed and only a depth measurement was made. If the depth and static water level measurements result in any uncertainty as to whether or not the well is a possible Drift-Platteville or St. Peter MAW, then the well will be inspected and logged using downhole video equipment. If proper physical access is available, then any obstructions will be removed from the well, if possible.

The water levels for the Drift-Platteville Aquifer (based on the 1990 Annual Report) area range from 880 to 870 feet (MSL). The water levels for the St. Peter Aquifer (based on the 1990 Annual Report) range from 870 to 864 feet (MSL).

Candidate MAW will be further investigated by making geophysical logs and collecting ground water samples. The geophysical logs will include spinner (flow) log, caliper log, and natural gamma log. Ground water samples representative of the deepest aquifer penetrated by the well will be collected and analyzed for PAH and phenolics. For this purpose, samples will be collected from the discharge of a submersible pump, positioned at the deepest level possible in the well, once field measurements of Ph, conductivity, and temperature have stabilized in accordance with MPCA procedures (Sabel and Clark, 1985).

## REPORTING REQUIREMENTS

Upon completion of all field and laboratory activities, a report will be issued that includes the findings of the investigation and recommendations for MAW reconstruction or abandonment. The report will contain all data collected during this study including field measurements and copies of geophysical logs. Video logs of the wells will be described in the text of the report,

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and will be retained by the City of St. Louis Park for subsequent viewing by the Agencies if requested. The report will be issued within one year of approval of this Work Plan, as required by the RAP.

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### References

City of St. Louis Park Zoning Records, 1987.

City of St. Louis Park, 1989. "St. Peter Aquifer Remedial Investigation Report." March, 1989.

City of St. Louis Park, 1991. "Annual Monitoring Report for 1990." March, 1991.

E.A. Hickok and Associates, 1983. "Technical Memorandum, February 16, 1983, Tables Revised, June, 1983: St. Louis Park Well Abandonment Project - Well Search and Inventory."

Hult, M.F. and Schoenberg, 1984. "Preliminary Evaluation of Ground Water Contamination by Coal-Tar Derivatives, St. Louis Park Area, Minnesota." U.S. Geological Survey Water Supply Paper 2211.

Sabel, G.V. and T.P. Clark, 1985. "Procedures For Ground Water Monitoring: Minnesota Pollution Control Agency Guidelines." April 1985.

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**WORK PLAN FOR  
INVESTIGATING LEAKING  
MULTI-AQUIFER WELLS  
IN THE ST. PETER AQUIFER**

Prepared by

The City of St. Louis Park  
St. Louis Park, MN 55416

Approved by: James N. Grube Date: 3/27/91  
James N. Grube, Project Manager  
City of St. Louis Park, MN

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_  
Quality Assurance Officer  
U.S. EPA Region V

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_  
Remedial Project Manager  
U.S. EPA Region V

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## QUALITY ASSURANCE PROJECT PLAN

### 1.0 INTRODUCTION

#### 1.1 Background

ENSR Consulting and Engineering (ENSR) and the City of St. Louis Park (City) will complete certain tasks in fulfillment of the Consent Decree and Remedial Action Plan (RAP) for the Reilly Site. This Quality Assurance Project Plan (QAPP) pertains to all work to be performed by ENSR and other contractors who investigate suspected leaking multi-aquifer wells affecting the St. Peter Aquifer. Activities to be undertaken during the investigation include: existing record review; measurements of well diameter, static water level, and well depth; caliper logging; spinner logging; natural gamma logging; downhole television logging; and ground water sampling and analysis for Drinking Water Criteria and Phenolics concentration. Further details on the work to be performed, its purpose and the methodology to be employed may be found in the Site Management Plan. This work is scheduled for completion within one year of approval of this Plan pursuant to Section 10.1.2 of the RAP.

#### 1.2 Quality Objectives

The purpose of this QAPP is to define the Quality Assurance and Quality Control (QA/QC) provisions to be implemented to ensure that:

- o The data generated will conform to the specifications of the Site Management Plan.
- o The work is performed in an efficient manner.
- o Field records generated during the course of the field work are complete and accurate.
- o The objectives of the Consent Decree are met.

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### 2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization is illustrated in Figure 2-1. The City is responsible for the completion of the investigation tasks described in this Plan. The City's Project Manager is responsible for overall project management. ENSR will be responsible for the coordination of the field investigation, including field sample retrieval, and Enseco/Rocky Mountain Analytical Laboratory (RMAL), with analytical facilities in Arvada, Colorado, will be responsible for the coordination and completion of all laboratory analyses.

The EPA and MPCA are responsible for review and approval of the Sampling Plan, including the QAPP. In addition, laboratory and field audits may be completed by appropriate United States Environmental Protection Agency (EPA) representatives. The Minnesota Pollution Control Agency (MPCA) is responsible for review of field procedures practiced by the Sampling Team. Responsibilities of the key positions in the EPA and MPCA are described below:

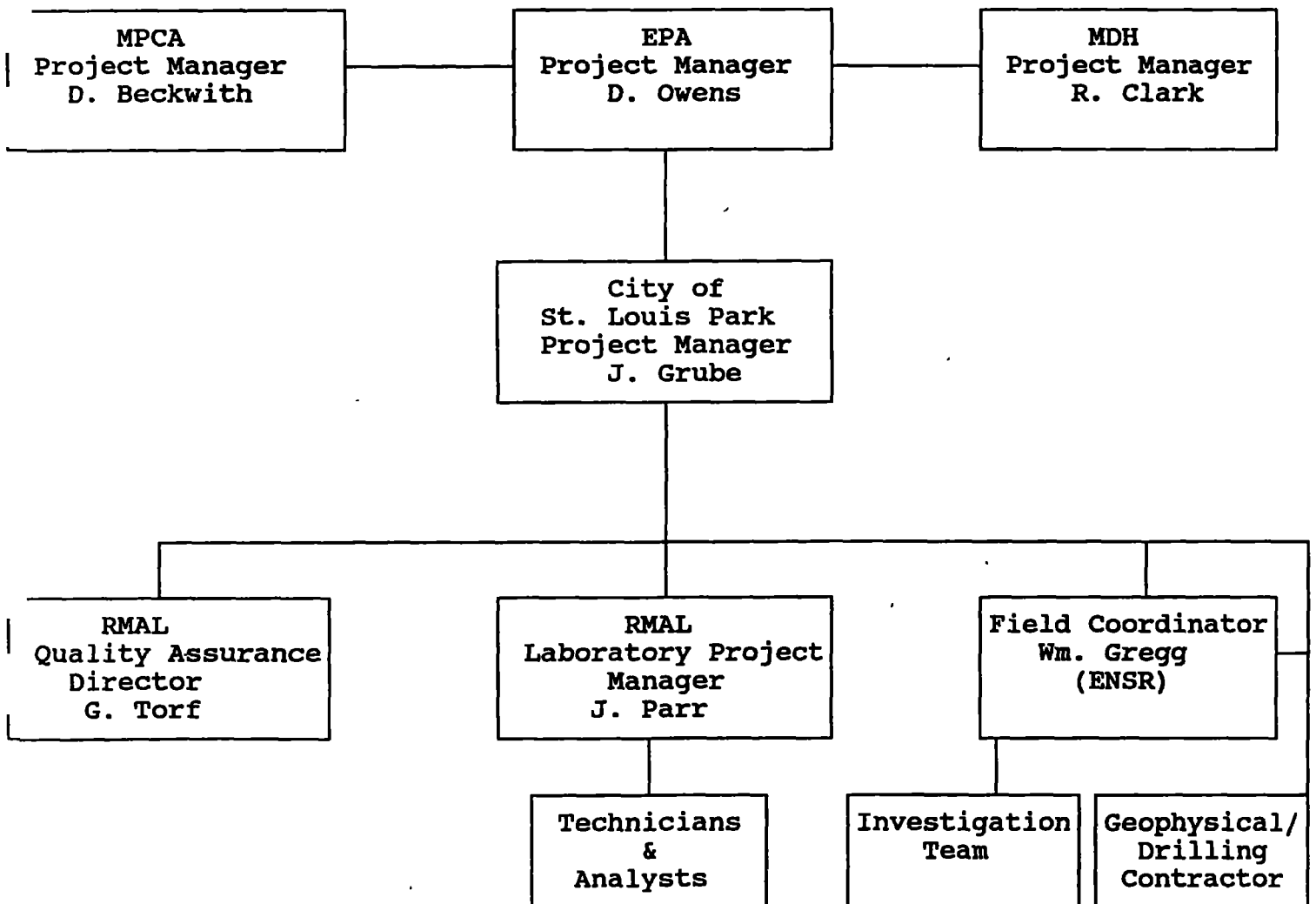
- o EPA Project Manager: The EPA Project Manager, EPA Region V, is responsible for the review and approval of the QAPP on behalf of the EPA.
- o MPCA Project Manager: The MPCA Project Manager shall be responsible for review and approval of the QAPP on behalf of the MPCA and review of field procedures practiced by the Sampling Team.
- o Minnesota Department of Health (MDH) Project Manager: The MDH Project Manager shall be responsible for review of information collected on well integrity and construction to determine if wells are within the Minnesota Water Well Construction Code. The MDH Project Manager will also review field procedures practiced by the Sampling Team.

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QUALITY ASSURANCE PROJECT PLAN





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The City's Project Manager shall be responsible to assess the data relative to the quality objectives identified in Section 1.2 of the QAPP.

The Investigation Team shall consist of employees of ENSR. The team shall be responsible for conducting the field investigation, conducting field measurements (i.e., water level), and maintaining proper documentation procedures stated in the QAPP.

The geophysical/drilling contractor will conduct any downhole geophysical testing and/or redrilling of any wells determined to be potential MAWs.

Responsibilities of the key positions in the organization of RMAL are described below:

- **Laboratory Project Manager:** The Laboratory Project Manager is ultimately responsible for all laboratories and is the primary point of contact for issues surrounding this QAPP, resolving technical problems, modifications to Standard Operating Procedures (SOP's) etc.
- **Quality Assurance Director:** The Quality Assurance Director is responsible for overall quality control oversight, including internal audits. The Quality Assurance Director supervises an independent QA/QC department and reports directly to the Division Director and Corporate Vice President for Quality Assurance.
- **Analyst:** The Analyst is responsible for the analysis of water samples for the requested parameters utilizing the methods prescribed by the QAPP.

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- **Technician:** The Technician is responsible for sample extraction. This requires practical experience and knowledge in the techniques of liquid - liquid solvent extraction, Kuderna - Danish evaporation, and the quantitative preparation of sample extracts for analysis.

### 3.0 QA/QC - FIELD ACTIVITIES

#### 3.1 Training

All field personnel working on the Leaking Multi-Aquifer Well Investigation (including subcontractors) will receive training on the purpose of the work, the procedures to be employed and the project Health and Safety Plan.

#### 3.2 Subcontractor Quality Control

Subcontractor quality control is that system of activities which ensures that products or services obtained from subcontractors fulfill the needs of the project.

Periodic quality control inspection of each contractor will be performed by the ENSR Field Coordinator to evaluate adherence to the project QA Plan and the project Health and Safety Plan. Inspection will include (as appropriate):

- Type and condition of equipment,
- Calibration procedures,
- Personnel qualifications,
- Decontamination procedures,
- Documentation,
- Level of personal protection

Results of the quality control inspection will be entered in the field notebook.

### **3.3 Document Control and Recordkeeping**

Document Control for the remedial investigation serves a two-fold purpose. It is a formal system of activities that ensures that:

- 1) All participants in the project are promptly informed of revisions of the Quality Assurance Plan; and
- 2) All critical documents generated during the course of the work are accounted for during, and at the end of the project.

This QAPP and all Standard Operating Procedure documents have the following information on each page:

- Document number
- Page number
- Total number of pages in document
- Revision number
- Revision date

When any of these documents are revised, the affected pages are reissued to all personnel listed as document holders with updated revision numbers and dates. Issuance of revisions is accompanied by explicit instructions as to which documents or portions of documents have become obsolete.

Control of, and accounting for documents generated during the course of the project is achieved by assigning the responsibility for document issuance and archiving to the ENSR Field Coordinator.

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Documentation for the project will either be recorded in non-erasable ink, or will be photocopied promptly upon completion, and the photocopies dated. All documents will be signed by the person completing them.

### 3.4 Ground Water Sampling Procedures

All ground water sampling and analysis called for in the Site Management Plan will be conducted in accordance with the 1991 Sampling Plan (RAP Section 3.3).

### 3.5 Final QA/QC Measures

Final QA/QC measures will satisfy local, state, and federal criteria and the objectives of the RAP.

## 4.0 NUMERICAL ANALYSIS AND PEER REVIEW

All numerical analyses, including manual calculation, mapping, and computer modeling will be documented and subjected to quality control review in accordance with ENSR SOP 1005, Numerical Analysis and Peer Review (Appendix A). All records of numerical analyses will be legible, reproduction-quality and complete enough to permit logical reconstruction by a qualified individual other than the originator.

## 5.0 AUDITS AND CORRECTIVE ACTION

ENSR conducts periodic audits to assess the level of adherence to Quality Assurance policies, procedures, and plans.

Whenever quality deficiencies are observed that warrant immediate attention, formal corrective action request forms are issued to the project manager by the Quality Assurance Department. The Quality Assurance Department retains one copy of the form when it is issued. The project manager completes the form and signs it when corrective

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action has been implemented, and returns the original to the Quality Assurance Officer to close the loop.

ENSR maintains a record of all corrective action requests and reports their status to ENSR management in a quarterly report.

Should an audit be conducted on this project, St. Louis Park will be apprised of the audit findings and of any corrective action that is requested and performed.

## Appendix A



# STANDARD OPERATING PROCEDURE

Number: 1005 Date of Issue: 2nd Otr. 1989  
Title: Numerical Analysis and Peer Review

## Organizational Acceptance

Originator

*Donald P. G...*

Authorization

*John M. Whittemore*

Date

*10-31-85*

Department Manager

*E. Mc...*

*10-31-85*

Divisional Manager

*Peter Shanahan*

*Oct 31 1985*

Group Quality Assurance Officer

*John M. Whittemore*

*10-31-85*

Other

Revisions

Changes

Authorization

Date

1

Title : • Changed Number from  
2005 to 1005

*John M. Whittemore*

*5-9-89*

## 1. Purpose and Applicability

This document describes ENSR's procedure for ensuring that all data analyses for site investigations and other studies are correct and consistent with project objectives and are legibly and retrievably documented. The purpose of the documentation is to permit peer review and reconstruction of the logic by which any conclusions were deduced.

## 2. Responsibilities

The responsibility for implementation of this procedure on each project rests with the person performing the calculations.

The project manager is responsible for ensuring the completeness of project files.

## 3. Method of Documentation

### 3.1 Manual Calculations

- 3.1.1 All calculations shall be documented in legible, reproduction-quality records. The records shall be complete enough to permit logical reconstruction by a qualified person other than the originator.
- 3.1.2 Calculations should be maintained in division files during the project, and shall be placed into the central project file at the end of the project.
- 3.1.3 Each calculation should be assigned a unique identification number by an appropriate person. The calculations may be consecutively numbered within a given project. (e.g., D010-1, D010-2,...).
- 3.1.4 Calculations for each project should be kept in a binder with an index sheet.
- 3.1.5 Records of calculations shall contain, on each page, the initials of the originator and reviewer, the date, the project number, calculation number and page number.



Title: Numerical Analysis and Peer Review

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3.1.6 Each calculation shall have a cover page which should contain:

- o client name,
- o project name and number,
- o calculation name and number,
- o total number of pages in the calculation,
- o date,
- o originator's signature.

3.1.7 The complete record of any series of calculations for a project shall have a cover page containing at least the following:

- o Statement of purpose
- o Brief description of method
- o Assumptions and justifications
- o Reference to input data sources
- o All numerical calculations, showing all units
- o Results
- o Reference to associated computer output
- o Signature of originator and date

### 3.2 Computer Programs

Documentation and qualification procedures for ENSR-written computer programs are detailed in ENSR SOP 1006. Each revision of each program is documented in an annotated hard copy of the software. Annotations should be sufficient to permit a qualified individual other than the originator to understand how the program works. Minimum contents of such a record are:

- o Program name
- o Originator's name
- o Input parameters
- o Date of printout
- o Revision number
- o Each page should be numbered, and should indicate the total number of pages in the record

These records are archived along with the qualification records in a central file.

**3.3 Computer Program Output**

3.3.1 All final computer program output used in a given project will be retained in hard copy in the project files. The output should be bound and assigned a unique reference number.

3.3.2 Each program output record shall contain at least the following:

- o Name and revision date of program or model used
- o Input parameters
- o Name of user
- o Date of run

**3.4 Drawings**

3.4.1 All drawings shall be labeled with a unique identification number, which might consist of the project number and a sequential drawing number (e.g. D010-1, D010-2,...).

3.4.2 All drawings shall be constructed using standardized symbols and nationally-recognized drafting standards

3.4.3 All drawings shall be signed and dated by the originator and checked, signed and dated by a reviewer.

3.4.4 All drawings to be published must be approved for issue by the project manager or his designee.

**4. Method for Review and Revision**

4.1 All calculations and drawings for each project shall be verified by a qualified person other than the originator.

4.2 Verification shall consist of a thorough check of the calculations for the following elements:

- o Appropriateness of method,
- o Appropriateness of assumptions,
- o Correctness of calculations,
- o Completeness of references,
- o Completeness of record.
- o Correctness of input parameters for calculations using computer programs.

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- 4.3 Method of Review - It is the responsibility of the reviewer to assure that the methodology used and results obtained are correct. This may require verification of each number in the calculation, but this is usually not necessary. Typically, spot checks of the computations and visual inspection for the reasonableness constitute a sufficiently thorough check.

In some cases, it may be appropriate and economically feasible for the reviewer to perform a complete, independent calculation using a different, but appropriate method.

It is up to the reviewer to determine the appropriate method of review.

- 4.4 If the reviewer recommends revisions, the reviewer and originator will confer until any disagreements are resolved.
- 4.5 After determining that the calculation is acceptable, the reviewer will sign and date the cover page and initial and date the remaining pages.
- 4.6 A photocopy of the approved calculation record is made and filed in the central project file.

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## **SECTION C**

### **HEALTH AND SAFETY PLAN**

## HEALTH AND SAFETY PLAN

Because the field work for this project involves only limited field work, there is no specific Health and Safety Plan for investigating multi-aquifer wells. However, as in all work that may involve heavy machinery such as pump trucks or drilling rigs, common sense safety rules apply. Hard hats will be worn in the vicinity of heavy machinery, and ear, eye, foot and hand protection should be worn, if needed. The Health and Safety Plan that is included in the 1991 Sampling Plan will apply to field work associated with any ground water sampling activities for this project.

If a worker is injured, first aid procedures will be followed and, if necessary, emergency medical attention will be sought. The names and numbers for emergency services are provided below:

Fire Department	911
Ambulance	911
Police Department	911
Methodist Hospital	932-5000

Methodist Hospital is located at 6500 Excelsior Boulevard in St. Louis Park (see attached map).

NON-RESPONSIVE

LOCATION MAP

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## **SECTION D**

# **COMMUNITY RELATIONS PLAN**

## **COMMUNITY RELATIONS PLAN**

The investigation Plan for Multi-Aquifer Wells is to be completed in accordance with the Consent Decree - Remedial Action Plan for the Reilly N.L.P. Site in St. Louis Park, Minnesota. All community relations programs related to this work will be coordinated through the following agencies:

<b>United States</b>	<b>Ms. Judy Beck</b> <b>United States Environmental Protection Agency</b> <b>(312) 353-1325</b>
<b>State of Minnesota</b>	<b>Mr. Ralph Pribble</b> <b>Minnesota Pollution Control Agency</b> <b>(612) 296-7792</b>
<b>City of St. Louis Park</b>	<b>Mr. James N. Grube</b> <b>City of St. Louis Park</b> <b>(612) 924-2551</b>

Information necessary to conduct the Community Relations Plan will be provided by the City and Reilly.